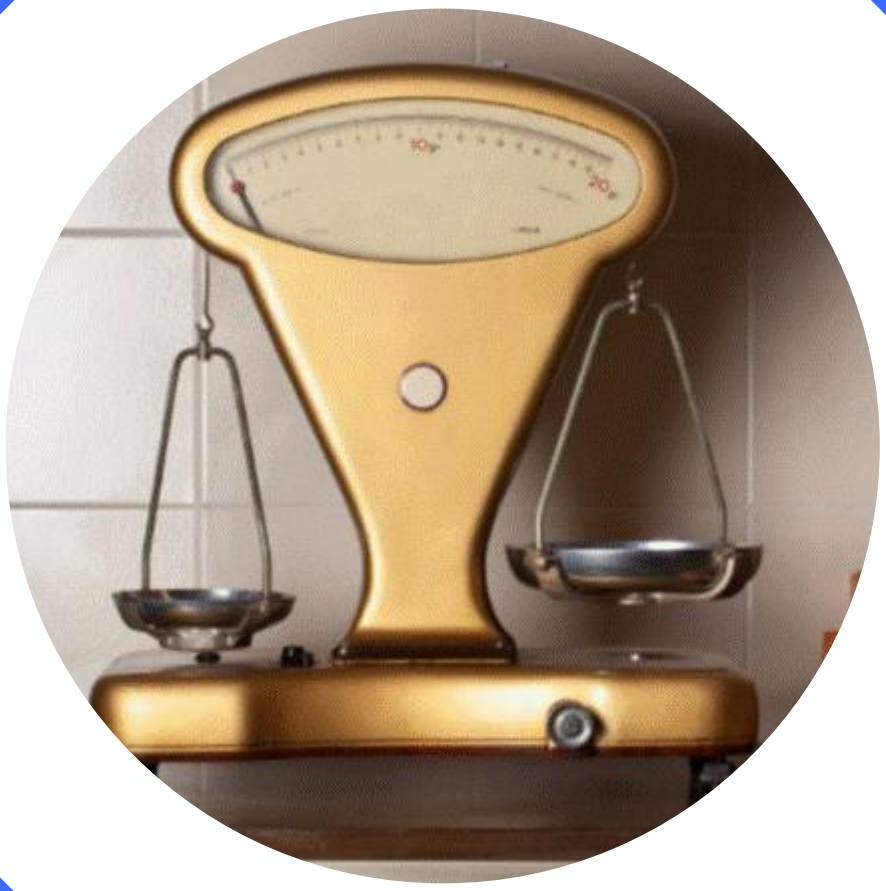
Actuaries Institute.

Fellowship Program

General Insurance and Health Valuation

Subject Syllabus 2025



1. Overview and Aim

This subject aims to provide students with an understanding of how to perform an insurance liability valuation. Implications of different methods, models and assumptions are discussed. Quantification of, allowance for and communication of uncertainty is discussed along with the critical thinking required when performing a liability valuation.

2. Student Outcomes

After successfully completing this subject, students will be able to:

- describe the various general and health insurance products, including the events that give rise to a claim, appropriate measures of exposure, the pattern over which the risk emerges and the basis for compensation;
- explain how insurance liability valuations feed into the balance sheet of an insurer and implications for the insurer's capital requirements;
- plan and produce appropriate methods, models, and parameters to value insurance liabilities whilst recognising data considerations; and
- select a specific insurance liability valuation procedure, by considering the key factors including the merits of various options.

3. Prerequisites

Students will have attempted (but not necessarily passed) all Foundation Program subjects and all Actuary Program subjects.

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4. Assessment Skill Level

Assessment of this subject will be split across the following skill levels:

- Simple Application (25%): demonstration of a detailed knowledge and understanding of the topic
- Application (50%): demonstration of an ability to apply the principles underlying the topic within a given context; and
- Higher Order (25%): demonstration of an ability to perform deeper analysis and assessment of situations, including forming judgements whilst taking into account different points of view, comparing and contrasting situations, suggesting possible solutions and actions, and making recommendations.

5. Assessment Method

The subject is assessed via a three-hour (plus 15-minute reading time) open-book examination worth 80% and an assignment worth 20%.

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6. Learning Objectives

The following is a list of the learning objectives for this subject. A mapping to the relevant subject chapter is indicated in brackets after each learning objective (e.g. C02 refers to Chapter 2 for this subject).

1 Describe the main characteristics of general insurance, health insurance, and statutory compensation schemes and the insurance liabilities that may arise (C02) [12%]

1.1 Discuss the main coverage elements in general insurance, health insurance, and statutory compensation schemes, including the events that give rise to any entitlements

1.2 Outline the main market sectors for general and health insurance

1.3 List the range of payment types that may arise, including the entities to whom the payments may be made and their broad characteristics, in terms of seasonality, quantum, volatility, risk drivers and cash flow

1.4 List the parties that may influence the claim management process and explain their potential to influence ultimate outcomes and any interests they may have in how that process unfolds

1.5 Describe the concept of the liability for incurred claims and liability for remaining coverage for general insurance, health insurance and injury compensation schemes and the different purposes for valuing insurance liabilities

1.6 Describe the IBNR (incurred but not reported) and IBNER (incurred but not enough reported) components of the liability for incurred claims

1.7 Describe key stakeholders and their interests in insurance liability valuation results

2 Explain the liability valuation process including data, models, and controls (C03) [10%]

2.1 Explain the actuarial approach to valuing insurance liability cash flows and the probabilistic nature of liability valuation models

2.2 Explain the inputs to insurance liability valuation models

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2.3 Explain how insurance liability valuations are affected by professionalism, the internal and external environment and qualitative aspects, which may change over time

2.4 Explain the importance of data availability and limitations, and management information required, in adopting a specific valuation approach

2.5 Explain the importance of recognising the various features of data quantity and data quality when performing an actuarial valuation

- Explain the full range of data that may be available in undertaking a claims valuation and their sources
- Explain the various uses of data in the valuation process
- Determine portfolios, groups and sub-groups of data, and why they may be investigated at different levels
- Determine data checks and strategies to deal with inaccuracies in data and incomplete data as part of the valuation process

2.6 Explain the use of process controls and documentation as part of the liability valuation process

3 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Chain Ladder, Bornhuetter-Ferguson and Projected Case Estimate methods (C04) [10%]

3.1 Distinguish between underwriting, accident and reporting periods

3.2 Distinguish between claim periods, development periods and calendar periods

3.3 Distinguish between using paid data and incurred data and their implications in the valuation process

3.4 Detect and respond appropriately to changes in the claims processing practices from which valuation data arises

3.5 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Chain Ladder method

3.6 Explain the drivers of exposure change for claims portfolios and how to allow for these in valuations

3.7 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Bornhuetter-Ferguson method

3.8 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Projected Case Estimate methods

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4 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using payment per claim methods (C05) [10%]

4.1 Apply CPI or AWE indices to adjust historical claims data to current dollars

4.2 Apply an allowance for claims inflation in the valuation process, including use of the Separation Method as part of a valuation process

4.3 Analyse claim data by average claim size and number of claim reports

4.4 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Payments Per Claim Incurred method

4.5 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Payments Per Active Claim method

4.6 Determine estimates of the gross undiscounted central estimate of the liability for incurred claims using the Payments Per Claim Finalised method and the operational time functionality

5 Determine estimates of the gross undiscounted central estimate liability for incurred claims using code based methods and assess the variability (C06) [10%]

5.1 Describe the different types of model error that arise in a valuation of the liability for incurred claims

5.2 Apply the Mack and Bootstrap methods to aggregate claim data to estimate the liability for incurred claims and assess the variability

5.3 Apply GLM methods to aggregate claim data to estimate the liability for incurred claims and assess the variability

5.4 Discuss the potential for the use of machine learning methods to estimate the liability for incurred claims and assess the variability

5.5 Apply stochastic simulation to estimate the liability for incurred claims and assess the variability

5.6 Describe the inherent risk correlations and diversification that applies when aggregating a number of separate valuations

6 Justify the selection of the valuation estimates adopted for the liability for incurred claims and communicate the uncertainty (C07) [10%]

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6.1 Justify the valuation estimate for the liability for incurred claims appropriate to the circumstances

6.2 Evaluate the limitations of the various actuarial valuation techniques and the impact of these on valuation results

6.3 Evaluate how to allow for latent claims and potential claims features that have not manifested in the reported claims data

6.4 Describe the considerations which arise when back testing and assessing the goodness of fit

6.5 Apply the procedures of stress, scenario, and sensitivity testing as part of the valuation process and evaluate the results

6.6 Explain the uncertainty of the valuation estimates

7 Apply approaches to allow for discounting and claims management in a liability valuation (C08) [5%]

7.1 Apply discounting of cash flows as part of a valuation process

7.2 Apply methods to account for claims handling expenses and other costs in a liability valuation

8 Prepare methods to determine the liability for remaining coverage (C09) [6%]

8.1 Explain the component of the insurance liabilities that relates to the remaining coverage

8.2 Explain the considerations for different types of covers and risks when assessing the liability for remaining coverage

8.3 Prepare alternative approaches to estimating the liability for remaining coverage, including exposures to catastrophe events

8.4 Prepare the allowance for onerous contracts under IFRS17

9 Construct allowances for reinsurance, risk equalisation, risk pools, salvage, subrogation and other recoveries in insurance liability valuations (C10) [10%]

9.1 Explain the main types of reinsurance, risk equalisation and risk pools and when they might be used

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9.2	Explain the more common types of reinsurance, risk pools and risk equalisation, and how to value these from an insurer and reinsurer's perspective
9.3	Explain reinsurance cover considerations when differentiating a Losses Occurring basis and Risks Attaching basis
9.4	Explain reinsurance cover considerations for catastrophe covers
9.5	Construct methods to estimate reinsurance, risk equalisation, risk pools, salvage, subrogation and other recovery items
10	**Assess experience between valuations (C11) [7%]**
10.1	Determine a framework to monitor experience against the valuation assumptions
10.2	Justify assumption changes and determine their impact on valuation results
10.3	Assess the key drivers of the movement in the valuation result from the previous valuation
10.4	Explain the key drivers of the movements in the valuation result
11	**Explain how insurance liability valuation results feed into the balance sheet of an insurer and implications for the insurer's capital requirements (C12) [10%]**
11.1	Explain the balance sheet items that may be obtained from insurance liability valuations
11.2	Explain the various ways in which an insurer may financially support the risks they take on
11.3	Explain the context of capital for an entity
11.4	Explain the influences on profit emergence and return on equity
11.5	Explain risk based capital and its allocation to products

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